Type I Progress Report

ERTS-A

a. Title: Studies of the Inner Shelf and Coastal Sedimentation Environment of the Beaufort Sea from ERTS-A

ERTS-A Proposal No. : SR 206 Subdisciplines: 3I, 5B, 5E, & 5H

b. GSFC ID No. of P.I.: IN 394

c. Statement and explanation of any problems that are impeding the progress of the investigation: Field work at the test site has been in progress since early May 1972. The first ERTS-1 imagery was not received until late August 1972. ERTS-1 imagery in the spring of 1973 is imperative to complete the proposed study.

d. Discussion of the accomplishments during the reporting period and those planned for the next reporting period: Field studies of the initiation of river flow onto the frozen Arctic Ocean were made by a group of four scientists from May 15 to June 10, 1972. A time lapse camera mounted on a 40-ft. tower near the mouth of the Kuparuk River, west of Prudhoe Bay, provided a detailed 10-day record (24 hours a day) of flow direction and water level. It is believed that wind build-up, discharge variance of the river, and through-ice drainage rates are the prime factors influencing overflow onto the sea ice.

Current meter, transmissometer, temperature, salinity and thermoprobe data were collected from holes drilled in the shorefast ice from seal holes and from the river water overflow. Depth and areal distribution of the overflow water were monitored from the ice using snowmobiles, and from the air using a chartered helicopter and fixed-wing aircraft from the Arctic Research Laboratory, Point Barrow. Photographic records were made on 35mm KII, KX, Ektachrome IR, Plus X, and IR black and white film. A simple two-camera frame permitted simultaneous exposures of two types of film. Preliminary comparisons of the IR and conventional films, both color and black and white, showed no advantage to using the infrared film. However, the low altitude photography taken during this study will be very helpful in the interpretation of ERTS-A imagery.

Prior to leaving the study area, the time lapse camera was moved to a barrier island two miles seaward from the river mouth. Here we hope to obtain a record of the sea ice break-up offshore and to monitor ice push and gouge features on the barrier island beach. Arctic summer lighting conditions allow us to photograph 24 hours per day. The camera is being maintained by U. S. Fish and Wildlife scientists studying water fowl on the barrier island.

Copies of aerial photographs taken of the nearshore zone between Point Barrow and Barter Island in April 1972 as part of the AIDJEX study were requested from Bill Campbell (USGS, WRD,

Tacoma). He assured us that copies will be available at the end of the field season. Bill Van Tries (U. S. Sport Fisheries and Wildlife) agreed to extend offshore coverage of aerial photography, being flown with an I^2S multilens camera.

e. Discussion of significant scientific results and their relationship to practical applications or operational problems including estimates of the cost benefits of any significant results (To be prepared in scientific abstract form of 200 words or less): Field studies of the initiation of river flow onto the frozen Arctic Ocean were made by a group of four scientists from May 15 to June 10, 1972. A time lapse camera mounted on a 40-ft. tower near the mouth of the Kuparuk River, west of Prudhoe Bay, provided a detailed 10-day record (24 hours a day) of flow direction and water level. It is believed that wind build-up, discharge variance of the river and through-ice drainage rates are the prime factors influencing overflow onto the sea ice.

Current meter, transmissometer, temperature, salinity and thermoprobe data were collected from holes drilled in the shorefast ice from seal holes and from the river water overflow. Depth and areal distribution of the overflow water were monitored from the ice using snowmobiles, and from the air using a chartered helicopter and fixed-wing aircraft from the Arctic Research Laboratory, Point Barrow. Photographic records were made on

35mm KII, KX, Ektachrome IR, Plus X, and IR black and white film. A simple two camera frame permitted simultaneous exposures of two types of film. Preliminary comparisons of the IR and conventional films, both color and black and white, showed no advantage to using the infrared film. However, the low altitude photography taken during this study will be very helpful in the interpretation of ERTS-A imagery. (Subdisciplines: 3I, 5B, 5E, & 5H)

f. A listing of published articles, and/or papers, pre-prints, in-house reports, abstracts of talks, that were released during the reporting period: None.

g. Recommendation concerning practical changes in operations, additional investigative effort, correlation of effort and/or results as related to maximum utilization of the ERTS system: None.

h. A listing by date of any changes in Standing Order Forms: No changes.

i. ERTS Image Descriptor forms: None.

j. Listing by date of any changed Data Request forms submitted to Goddard Space Flight Center/NDPF during the reporting period: None.

k. Status of Data Collection Platforms (if applicable): N/A

STUDIES OF THE INNER SHELF AND COASTAL SEDIMENTATION ENVIRONMENT OF THE BEAUFORT SEA FROM ERTS-A_/

Erk Reimnitz
U. S. Geological Survey
345 Middlefield Road
Menlo Park, California 94025

1 September 1972

Type I Progress Report for Period 1 July 1972 - 31 August 1972

Prepared for:

Goddard Space Flight Center
Greenbelt, Maryland 20771

_/ Publication authorized by the Director, U. S. Geological Survey.